

ABSTRACT OF THE DISCLOSURE

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5 The present invention provides a novel, highly  
efficient, recombinant adenovirus expression system for  
expression of a heterologous gene(s) and/or gene product(s) in  
a mammalian cell. The recombinant adenovirus was produced by  
co-transfecting a novel vector with the large fragment of the  
adenovirus-5 genome in 293 cells. Homologous recombination  
between these two DNA fragments, resulted in the production of  
10 the recombinant adenovirus expression system. This vector,  
when converted to a recombinant virus has the unique  
capability of expressing one or more heterologous genes at  
very high levels. 60

15 The novel vector, comprises, at least one cDNA  
insertion site for cloning a selected heterologous gene; a  
promoter sequence positioned upstream from the gene insertion  
site; the left end replication and packaging elements of the  
adenovirus-5 genome positioned upstream of the promoter; a  
highly efficient eukaryotic splice acceptor and splice donor  
20 site positioned immediately downstream of the promoter; and  
positioned downstream of the insertion site a strong  
polyadenylation sequence and the region for homologous  
recombination containing a portion of the adenovirus-5 genome.  
Between the packaging sequence and the CMV promoter are  
25 restriction sites for insertion of a second fully functional  
transcription unit.

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